

Overview of “Linear Series” Piezoelectric Motion Unit

Low Temperature Piezoelectric Motion - Linear Series

Choose your suitable MultiFields® “Linear Series” products



Linear16-x



Linear16-z



Linear25-x

Defined by size	“16mm Series”		“25mm Series”
1 Work Environment	Default: 1.4 K ~ 400 K; 1e-7 mbar; 35Tesla Option1 - .ULT, lowest use temperature 30 mK; Option2 - .UHV, highest vacuum environment 2E-11 mbar;		
2 Dimensions	16 × 16 × 10.5 mm	16 × 16 × 16 mm	25 × 25 × 9.5 mm
3 Travel Range	3 mm	3 mm	6 mm
4 Max. Load	50 g	250 g	500 g
5 Dynamic Drive Force	1.5 N	3 N	2 N
6 Position Sensor	Resistive sensor		
Sensor Range	3 mm	3 mm	6 mm
Sensor Resolution	150 nm		
Sensor Repeatability	1 ~ 2 μm		
7 Drive Voltage	Max. 200 V		
8 Fine Tune Resolution @ 2 K*	sub-nanometer @ 2 K		
9 Step Size (min) @ 300 K*	~ 10 nm @ 300 K		
10 Pins Number	Drive - 2 pins Sensor - 3 pins	Drive - 4 pins Sensor - 3 pins	Drive - 2 pins Sensor - 3 pins
11 Weight	10 g	12 g	24 g

Fine Tune Resolution @2 K–Fine tune mode is a unique analog motion driven method, where piezo units are controlled by analog voltage signal, instead of continuous high frequency wave sequence. Because the resolution of the analog signal is very high, the stage can achieve sub-nano meter positioning accuracy.

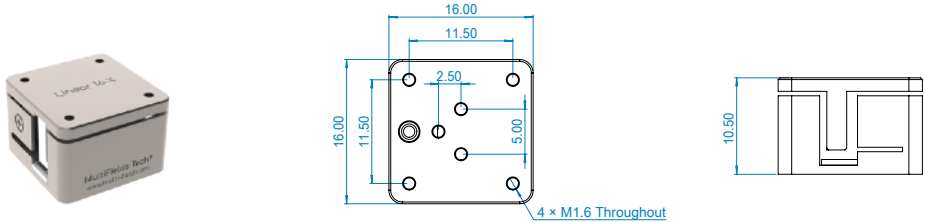
Step Size (min) @300 K–The open loop minimum incremental step size that the stage can move when it's doing stick-slip motion, driven by continuous high frequency wave sequence.

"16mm Series" – Linear16-x (closed-loop)

Smallest linear stage of x direction with 50g high load

- ➔ Features
- Miniature size
 - 50g High load
 - Ultra-high vacuum & low temperature compatible
 - Non-magnetic material
 - Closed-loop control

➔ Picture & dimensions



➔ Specifications

Optional Versions ⇨		.HV (default)	.ULT	.UHV	.ULT.UHV
		.HV version, compatible with 1E-7 mbar .ULT version, used at He3 or dilution cryogenics systems .UHV version, compatible with 2E-11 mbar			
1	Footprint × hight	16 × 16 × 10.5 mm			
2	Weight	10 g			
3	Work environment	Temperature range: 1.4 ~ 400 K, Max. Magnetic field: 35 Tesla			
4	Option1 - 30 mK		✓		✓
5	Option2 - 2e-11 mbar			✓	✓
6	Mainbody	Pure Ti	BeCu	Pure Ti	BeCu
7	Wires	Phosphor Bronze Twisted Paired Wires, 20cm			
8	Pin materials	Polyster (glass fiber filled), BeCu		Peek, BeCu	
9	Pins number	Drive - 2 pins, Sensor - 3 pins			
10	Fine Tune Resolution @2 K*	sub - nm			
11	Step Size (min) @300 K*	~ 10 nm			
12	Travel range	3 mm			
13	Max. Velocity @300 K	~ 2 mm/s			
14	Max. Load	50 g			
15	Dynamic force	1.5 N			
16	Position encoder @2 K	Resistive Sensor			
17	Encoder range	3 mm			
18	Sensor resolution	~ 150 nm			
19	Repeatability	1 - 2 μm			

For detail drawing and 3D model please contact us.

Adapter Plate - Guidance for MultiFields Low Temperature Piezoelectric Positioners Interconnect

Positioner on the topside ⇓	Linear16-z	Linear16-x	Linear25	Linear35	Rotator16
Linear16-z			AP.LT.L16z	AP.LT.L16z	
Linear16-x	✓	✓	✓	✓	
Linear25			✓	✓	
Linear35				✓	
Rotator16					
Rotator25			✓	✓	
Rotator35				✓	
Goniometer25			✓	✓	
Goniometer35				✓	
Scanner16	✓	✓	AP.LT.S16	AP.LT.S16	
Scanner25			✓	✓	
Positioner on the bottom ⇐	Linear16-z	Linear16-x	Linear25	Linear35	Rotator16

This table gives a comprehensive guide for two same or different positioners connect to each other. The left column positioners are selected on topside, while the top row positioners are selected as the bottom one.

Accessories - Adapter Plate - Interconnect

Adapter plates designed for MultiFields piezoelectric motion units



Adapter Plates are Used to Mount MultiFields Piezoelectric Positioners with Cross-mounting of Different Series Positioners. 1. All the adapter plates are fabricated by pure Ti metal. 2. Non-magnetic screws are included when you purchase the adapter plate set.

Adapter Plates for MultiFields Piezoelectric Positioners

	Part Name	Discription
Linear16-z	AP.LT.L16z	Adapter Plate Used to mount Linear16-z on other MultiFields positioners
Linear16-x	AP.LT.L16x	Adapter Plate Used to mount Linear16-x on other MultiFields positioners
Rotator16	AP.LT.R16	Adapter Plate Used to mount Rotator16 on other MultiFields positioners
Scanner16	AP.LT.L25	Adapter Plate Used to mount Scanner16 on other MultiFields positioners